

REMARKS

The Office Action mailed on April 17, 2007, have been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1, 3, 4, 6, 7 and 9-27 were pending, with claims 11-25 being withdrawn from prosecution. By this paper, Applicants cancel claim 21 and do not add any claims. Therefore, claims 1, 3, 4, 6, 7, 9-20 and 22-27 remain pending.

Applicants respectfully submit that the present application is in condition for allowance for at least the reasons that follow.

Interview of October 15, 2007

Examiner Shakeri is thanked for extending the courtesy of an interview to Applicants' representative on October 15, 2007, where the feature of the recited overlap of the shoes relative to the oscillation stroke was discussed, along with other features of the present invention.

In view of the Personal Interview held on October 15, 2007, Applicants submit that the Interview Summary (a copy of which is attached in Appendix A) provides a complete and proper recordation of the substance of the interview, per MPEP §713.04.

Claim Objections

Claim 26 is objected to. In response, in order to advance prosecution, and without prejudice or disclaimer, Applicants have amended claim 26 as seen above, and request reconsideration in view of the amendment.

Claim Rejections Under 35 U.S.C. §103(a)

In the Office Action, claims 1, 3, 4, 6, 7, 9, 10, 26 and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Judge (United States Patent No. 4,682,444) in view of JP 10-217090. In order to advance prosecution, and without prejudice or disclaimer, Applicants have further amended each independent apparatus claim to specifically recite that the mechanism *is adapted to* perform as claimed,¹ and amended all of the independent claims to make clear that the workpiece surface finish has a mid-concave profile obtained through stroke oscillation.

Applicants traverse the rejection of the claims, even prior to the above-proffered amendments, and respectfully submit that all pending claims are allowable for at least the following reasons.

Applicants rely on MPEP § 2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that none of the criterion of MPEP § 2143 have not been met by the PTO.

¹ Applicants rely on MPEP § 2173.05(g), which states that a “functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art” and that “the Court held that limitations such as ‘members *adapted to* be positioned’ and ‘portions . . . being resiliently dilatable whereby said housing may be slidably positioned’ serve to precisely define present structural attributes of interrelated component parts of the claimed assembly. *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976).” (Emphasis added.) Later boards have cited *Venezia*.

The Cited References Do Not Suggest All Claim Recitations

Even if the first requirement of MPEP § 2143 could be satisfied with the cited references (which it cannot, as explained below), the cited references still do not meet the third requirement, which is that “the prior art reference (or references when combined) must teach or suggest all the claim limitations.”

Claim 1 recites that the pressure applying mechanism

is adapted to operatively hold the plurality of shoes on the rear side of the lapping film in different contact areas in a partially overlapping relationship at a central region of the target shaped periphery of the workpiece and in non-overlapping relationship in both terminal regions of the target shaped periphery *such that the plurality of shoes are held in opposing offset positions with offset displacement of each of the plurality of shoes set to be less than the given oscillation stroke provided by the oscillating mechanism.*

(Emphasis added.)

Neither Judge nor JP '090 teach or suggest the feature of shoes held as recited. Specifically, the shoes of JP '090 are not held in opposing offset positions such that their respective *offset displacements are set to be less than the given oscillating stroke provided by the oscillating mechanism.* JP '090 teaches nothing about the relative dimensions of the shoes with respect to the axial movement of the workpiece (JP '090 indicates nowhere that the drawings may be scaled to reverse-engineer this feature, and Applicants submit that even if the drawings were to be scaled, it is impossible to accurately extract such a teaching from JP '090). Judge does not remedy the deficiencies of JP '090.

Applicants submit that the above-highlighted claim elements are more than just mere design choice. Instead, they constitute a fundamental advancement over the prior art that enables the mid-concave profile to be obtained at the recited dimensions - an advancement

which is only desirable in view of impermissible hindsight.² That is, the art recognizes nothing in the way of the desirability of the claimed features missing from the prior art.

Applicants respectfully submit that it would not have been obvious to modify the device of JP '090 as proffered by the PTO. Applicants point out that it is unnecessary that the relation between the offset displacement of the lap shoes 2 and the oscillation stroke of the work 1 of JP '090 are taken into account in the device of JP '090, as the teachings of JP '090 are simply not that sophisticated (as compared to the present invention). Also, as shown in Fig. 2, if the work 1 is oscillated with the larger oscillation stroke, the lapping paper 3 instantly rides on the curved surfaces of the work 1 while the offset displacement of the lap shoes 2 are with the relatively large dimension. *This results in the phenomenon that the offset displacement of the lap shoes 2 is larger than the oscillation stroke of the work 1.* Moreover, the structure of JP '090 is governed by a design constraint that prevents the work 1 from being over lapped to make the recesses 6 at the end portions of the oscillation stroke. JP '090 relates to a paper lapping apparatus having a lapping paper 3. Indeed, in Fig. 2, the lap shoes 2 are displaced in the axial direction X. However, as noted above, the objective of JP '090 is to prevent the work 1 from being over lapped to make the recesses 6 at the end portions of the oscillation stroke "S", as is depicted in Fig. 4. Thus, this is the reason why JP '090 teaches the structures depicted in Figs. 1 and 2 in which the lap shoes 2 have lapping regions that are asymmetrically set along the axis "X". JP '090 thus does not remedy the deficiencies of Judge with respect to claim 1.

* * * * *

The PTO asserts that setting the stroke and offset parameters to optimize the operation of the device to arrive at the present invention (features admittedly not explicitly taught in any of the cited references) would have been well within the knowledge of one of ordinary skill in

² In the invention of claim 1, to achieve the target shaped periphery of the surface finished workpiece with a surface profile formed in a mid-concave profile in a manner that is both precise and affords flexibility, the structure recited in claim 1 includes a plurality of shoes that are held in opposing offset positions with the offset displacement of each of the plurality of shoes being set less than the oscillation stroke that is provided by the oscillating mechanism.

the art. However, the PTO provides no evidence supporting this alleged fact that is so critical to finding the present claims obvious. It appears that the PTO relies on common knowledge in the art, as is discussed and permitted in MPEP § 2144.03, to satisfy the third requirement of MPEP § 2143. However, Applicants note that § 2144.03 allows an applicant “to traverse such an assertion,” and that when an applicant does so, “the examiner should cite a reference in support of his or her position.” (MPEP § 2144.03, second paragraph.) Absent a citation by the PTO of a reference that can be evaluated for all its teachings, Applicants hereby traverse the assertion that it would have been common knowledge in the art the features of the present invention regarding the offset displacement would be obvious to one of ordinary skill in the art for optimization purposes. **Applicants thus request, relying on § 2144.03 that the PTO cite a reference and exactly identify where such a reference teaches the alleged common knowledge, or else allow the claims.**

Further, with regard to the assertion that the present invention would be arrived at through routine optimization efforts, Applicants respectfully point to *In re Antonine*, the case cited in MPEP § 2144.05 II (Optimization of Ranges). Referring to *In re Antonine*, the MPEP states that a

particular parameter must *first* be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.

In re Antonine (citations omitted). (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.)

(Emphasis added.) As in *In re Antonine*, the prior art does not recognize that the recited claim features are result-effective variables, and no evidence has been proffered to the contrary. Accordingly, a *prima facie* case of obviousness has not been established for at least this reason.

Accordingly, claim 1 is allowable for at least the reason that none of the cited references teach or suggest the feature of the overlap as related to an oscillation stroke as claimed.

* * * * *

Method claim 27 recites the action of lapping a workpiece to obtain (i) a mid-concave profile having (ii) a depth equal to or greater than 5 µm and equal to or less than 20 µm. (Applicants note that with the introduction of the phrase “adapted to” into claims 1 and 26, the PTO should impart patentable weight onto these functional limitations as well.) Neither Judge nor JP ’090 teach or suggest either of these features. All that these two references teach is the finishing of a target shaped periphery of a workpiece to a smooth flat surface. Accordingly, the claims are allowable for at least this additional reason.

* * * * *

Claims 26 and 27 are allowable for the pertinent reasons that make claim 1 allowable as detailed above, and the claims that depend from claim 2 are allowable at least due to their dependency from claim 1, a claim that is allowable.

* * * * *

In sum, even if the first requirement of MPEP § 2143 could be satisfied, the third requirement of MPEP § 2143 is not satisfied by the PTO with respect to claim 1, because the cited references do not teach each and every element of the present invention. .

Lack of Suggestion or Motivation to Modify or Combine the References

The PTO asserts that it would have been obvious to modify JP ’090 to arrive at the present invention to polish the center more than the peripheries. Applicants submit that (i) the PTO has not identified where the prior art suggests the desirability of such an action, and (ii) the PTO has not established that the device of JP ’090 could be so successfully adjusted (more on this below). The PTO all but relies on Applicants’ disclosure for

motivation to modify the primary reference to arrive at the inventions as claimed, and the PTO cites nothing in the prior art that provides *specific* motivation to modify the references to arrive at any of the independent claims. Instead, the PTO provides the circular rationale that because a secondary reference (JP '090) teaches an element missing from the primary reference (Judge), it would have been obvious to combine the two references because the secondary reference allegedly teaches advantages of general implementation of that reference.³ Applicants submit that such rationale is circular and relies on impermissible hindsight. Moreover, this rationale would vitiate the first requirement of MPEP § 2143. This is because an overwhelming number of patents published by the JPO tout advantages of some sort or another (indeed, the JPO utilizes the problem-solution approach), and if the first requirement of MPEP § 2143 could be met by simply pointing to such advantages (or other advantages that are not taught), there would always be motivation to modify/combine references once a patent is found that teaches the missing element(s) of the primary reference.

* * * * *

As to the specifics of the alleged motivation to modify/combine the references, the PTO asserts that it “would have been obvious . . . to modify the invention of Judge et al. with the offset arrangement as taught by JP '090 to prevent local excessive shaving.” Applicants disagree that such desirability is found in the teachings of JP '090.

True, in the “problem to be solved” section of the abstract of JP '090, JP '090 states that the problem to be solved is to “prevent local excessive shaving,” just as is quoted in the Office Action. However, JP '090 immediately provides, as a solution, the use of an asymmetrically arranged pair of lap shoes, with reference to Fig. 1. The abstract does not comment on whether an offset arrangement “prevents local excessive shaving.” Thus, the rationale proffered by the PTO does not rise to the standard required by MPEP § 2143.01, and a *prima facie* case of obviousness has not been established.

* * * * *

³ Which it does not, as detailed below.

MPEP § 2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a “*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” (MPEP § 2144.05(III), second paragraph, emphasis added, citations omitted.)

As previously noted, neither cited reference teaches or suggests the claimed features as they relate to producing a mid-concave profile. In fact, JP ’090 teaches away from this feature, because JP ’090 teaches that it seeks to “improve **straightness** of a finishing surface.” (Problem to be solved section, emphasis added.) Thus, far from imparting a mid-concave profile onto the workpiece, JP ’090 seeks to eliminate such a profile. Furthermore, Judge teaches that its assembly results in a “barrel shaped” cam. Therefore, both references in fact teach away from the invention as claimed. Thus, to the extent that a *prima facie* case of obviousness might have been established, such case is hereby rebutted.

* * * * *

In summary, because of the lack of suggestion or motivation in the prior art to modify the reference, the first requirement of MPEP § 2143 was not met by the PTO with respect to the claims as previously pending, and cannot now be met, as detailed above, and, hence, a *prima facie* case of obviousness has not been established.

Lack of a Reasonable Expectation of Success

MPEP § 2143.02 permits references to be modified or combined to reject a claim as obvious only if there is a reasonable expectation of success. There is no evidence in the references, and certainly none identified by the PTO, that one of ordinary skill in the art would have had a reasonable expectation of success in achieving Applicants’ invention by modifying JP ’090. The PTO asserts that it would have been obvious to modify JP ’090 to arrive at the present invention in order to “polish the center [of the workpiece] more than the peripheries,” yet has provided no evidence indicating that the relatively coarse device of JP ’090 could be so adjusted. That is, Applicants submit that the skilled artisan might have considered the device of JP ’090 to be incapable of adjustment as proposed by the PTO, and

the PTO has not provided any evidence to the contrary. (Applicants note that this example is simply a starting point for a showing of a reasonable expectation of success; more would be needed.) Thus, one of ordinary skill in the art would not have seen the combination of the references as producing a successful finishing device as claimed. Because of this, the second criteria of MPEP § 2143 has not been met by the PTO, and a *prima facie* case of obviousness has therefore not been established.

Request for Rejoinder of Withdrawn Claims

Claims 11-25 stand withdrawn. Applicants note that these claims depend either directly or ultimately from claim 1. Applicants respectfully request that these claims be rejoined and allowed due to their dependency from claim 1, a claim that is allowable. Applicants respectfully submit that no significant burden is placed on the PTO by rejoining and examining these claims. Indeed, such action is concomitant with the indication that “upon allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim.”

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for

such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Shakeri is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

By

Martin J. Cosenza
Attorney for Applicants
Registration No. 48,892

Date 04/16/2007
FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 295-4747
Facsimile: (202) 672-5399

APPENDIX A

TO: Mr. Martin J. Cosenza COMPANY:

Interview Summary	Application No.	Applicant(s)	
	10/772,429	KONDO ET AL.	
	Examiner Hadi Shakeri	Art Unit 3723	

All participants (applicant, applicant's representative, PTO personnel):

(1) Hadi Shakeri. (3) _____.(2) Martin J. Cosenza. (4) _____.Date of Interview: 15 October 2007.Type: a) Telephonic b) Video Conference
c) Personal [copy given to: 1) applicant 2) applicant's representative]Exhibit shown or demonstration conducted: d) Yes e) No.
If Yes, brief description: _____.Claim(s) discussed: 1,26 and 27.Identification of prior art discussed: JP'090.Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: the rejection over prior art of record was discussed. Applicant pointed out that the prior art does not disclose the offset positions with offset displacement of each of the shoes to be set less than an oscillation stroke provided by the oscillating mechanism as recited in the claims. Examiner indicated that even if this argument were valid (dwg discloses the oscillation magnitude and offset positions), such modification would have been obvious to one of ordinary skill in the art depending on the workpiece/operational parameters, e.g., to polish the center more than the peripheries, etc.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Hadi Shakeri/
Primary Examiner, Art Unit 3723
October 15, 2007

Examiner Note: You must sign this form unless it is an attachment to a signed Office action.

Examiner's signature, if required

TO : Mr. Martin J. Cosenza COMPANY :

Summary of Record of Interview Requirements**Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record**

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

**Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)**

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner.
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.